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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,320	01/26/2004	Byoung-Chul Kim	0630-1941P	7519
2292	7590	10/04/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			SANTIAGO, MARICELI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,320

Applicant(s)

KIM, BYOUNG-CHUL

Examiner

Mariceli Santiago

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,9,10 and 12 is/are rejected.
- 7) ☒ Claim(s) 4,7,8,11 and 13-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Amendment, filed on January 26, 2004, has been entered and acknowledged by the Examiner.

Claims 1-17 are pending in the instant application.

Specification

The abstract of the disclosure is objected to because legal language such as "Disclosed is" should be avoided in the context of the abstract. Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 6, 12 and 13 are objected to because of the term "than" appear to be out of context.

Claim 17 is objected to because the recitation "Rye is an inner curvature radius at a center of a short axis of the panel" should read "Rye is an inner curvature radius at an edge of a short axis of the panel". For examination purposes it is considered to refer to "at an edge".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2879

Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ionue et al. (US 5,416,379).

Regarding claim 1, Ionue discloses a color cathode ray tube comprising a panel of which an outer surface is substantially plane (Column 7, lines 4-12) and an inner surface has a predetermined curvature (Column 6, lines 21-23), and a mask (26) for selecting colors of electron beams (32B, 32G, 32R) incident from inside of the panel, in which a formula, $0.3 \leq (R_{xe}/R_{xc}) \leq 0.75$ is satisfied, wherein the R_{xe} is an inner curvature radius at an edge of a long axis of the panel, and the R_{xc} is an inner curvature radius at a center of a long axis of the panel (Fig. 4, curve 37H, while Fig. 4 refers to the shadow mask curvature, applicant discloses that the curvature design of the shadow mask may also be applied to the configuration of the panel's inner curvature, Column 9, lines 34-40).

Regarding claim 2, Ionue discloses a color cathode ray tube wherein the inner curvature radius is gradually decreased from a center portion of the panel towards a peripheral portion of the panel (Fig. 4).

Regarding claim 5, Ionue discloses a color cathode ray tube wherein a formula, $0.3 \leq (R_{xe}/R_{xc}) \leq 0.5$ is satisfied (Fig. 4).

Regarding claim 6, Ionue discloses a color cathode ray tube wherein a USD of the panel is 500mm or less, wherein the USD is a diagonal size of an effective surface of the panel.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (US 4,623,818) in view of Inoue et al. (US 5,416,379).

Regarding claim 1, Yamazaki discloses a color cathode ray tube comprising a panel of which an outer surface is surface has a predetermined curvature, and an inner a mask for selecting colors of electron beams incident from inside of the panel, in which a formula, $0.3 \leq (R_{xe}/R_{xc}) \leq 0.75$ is satisfied, wherein the R_{xe} is an inner curvature radius at an edge of a long axis of the panel, and the R_{xc} is an inner curvature radius at a center of a long axis of the panel. Yamazaki is silent in regards to the limitation of the outer panel surface being substantially plane. However, in the same field of endeavor, Inoue discloses a color cathode ray tube comprising an panel having a an outer surface with a predetermined curvature and being substantially plane so that a reflected image on the outer surface externally looks natural without causing a sense of incompatibility, moreover, the flat outer surface can improve the reading angle for the peripheral edge portion of the effective area, and further reduce the apparent distortion of a picture, which depends on the view angle, and the angle of reflection of external light, thereby providing a satisfactory image (Column 7, lines 4-12). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the panel with substantially flat outer surface as disclosed by Inoue in the cathode ray tube of Yamazaki so that a reflected image on the outer surface externally looks natural without causing a sense of incompatibility.

Regarding claim 2, Yamazaki discloses a color cathode ray tube wherein the inner curvature radius is gradually decreased from a center portion of the panel towards a peripheral portion of the panel.

Art Unit: 2879

Claims 3, 5, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ionue et al. (US 5,416,379) in view of Opresko et al. (US 5,519,283).

Regarding claims 3 and 9, Ionue fails to disclose the limitation of the mask being formed of an AK, or either Fe-Ni based alloy or Fe-Ni-Co based alloy material. However, in the same field of endeavor, Opresko discloses the use of AK material, a FE-Ni based alloy or a Fe-Ni-Co based alloy for the mask assembly for their desirable low coefficient of thermal expansion. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have the mask formed of an AK material, a Fe-Ni based alloy or a Fe-Ni-Co based alloy, since the selection of known materials for a known purpose is within the skill of the art.

Regarding claim 5, Ionue discloses a color cathode ray tube wherein a formula, $0.3 \leq (R_{xe}/R_{xc}) \leq 0.5$ is satisfied.

Regarding claim 10, Ionue discloses a color cathode ray tube wherein a formula, $0.5 \leq (R_{xe}/R_{xc}) \leq 0.75$ is satisfied.

Regarding claim 12, Ionue discloses a color cathode ray tube wherein a USD of the panel is 500mm or less, wherein the USD is a diagonal; size of an effective surface of the panel.

Allowable Subject Matter

Claims 4, 7, 8, 11 and 13-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 4, and specifically comprising the limitation of the formula, $4.5 \leq (R_{xc}/USD) \leq 8.5$ is satisfied, wherein the USD is a diagonal size of an effective surface of the panel.

Regarding claim 7, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 7, and specifically comprising the limitation of a transmission ratio of a center portion of the panel is 45%-75%.

Regarding claims 8 and 13, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 7 and 13, and specifically comprising the limitation of wherein the wedge ratio is 180%-220%, or 200% or more.

Regarding claim 11, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 11, and specifically comprising the limitation the formula, $4.5 \leq (R_{xc}/USD) \leq 6.5$ is satisfied, wherein the USD is a diagonal size of an effective surface of the panel.

Regarding claims 14-16, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 14-16, and specifically comprising the limitation of a formula, $R_{xe} \leq R_{de} \leq R_{ye}$ is satisfied, wherein the R_{xe} is an inner curvature radius at an edge of a long axis of the panel, the R_{ye} is an inner curvature radius at an edge of a shod axis of the panel, and the R_{de} is an inner curvature radius at an edge of a diagonal axis of the panel.

Regarding claim 17, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 17, and specifically comprising the limitation of a formula, $0.35(R_{ye}/R_{yc})S^{0.5}$ is satisfied, wherein the R_{ye} is an inner curvature radius at a

Art Unit: 2879

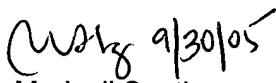
edge of a short axis of the panel and Ryc is an inner curvature radius at an center of a short axis of the panel.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Mariceli Santiago
Primary Examiner
Art Unit 2879